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U.S. Department of the Interior • U.S. Geological Survey

# MINERAL INDUSTRY SURVEYS

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Gordon P. Eaton, Director

Reston, VA 20192

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For information, contact:

John F. Papp, Commodity Specialist

Telephone: (703) 648-4963, Fax: (703) 648-7757

E-mail: [jpapp@usgs.gov](mailto:jpapp@usgs.gov)

Micheal George (Data), (703) 648-4999

MINES-DATA: (703) 648-7799

MINES FaxBack: (703) 648-4999

Internet: <http://minerals.er.usgs.gov/minerals>

## CHROMIUM IN AUGUST 1996

Chromite consumption increased by 19% in August 1996 compared with that of the previous month's revised data, according to the U.S. Geological Survey. Net production of chromium ferroalloys and metal in August increased 34% compared with revised data for July, and consumption of chromite ferroalloys and metal in August decreased by 17% compared to revised data for July. Chromite stocks increased 12% over the same period. At the August rate of consumption, chromium stocks represented 10 months of domestic supply. Chromium ferroalloys and metals stocks decreased 27% compared with revised data for July. At the August rate of consumption, chromium ferroalloys and metal stocks represented 1.2 months of domestic supply.

Included in this Mineral Industry Surveys are: U.S. consumption and stocks of chromite; U.S. net production, net shipments, and stocks of chromium materials; U.S. consumption by end use and consumer stocks of chromium ferroalloys and metal for August; U.S. Government inventory; and foreign trade for July.

### Update

The Defense National Stockpile Center (DNSC) reported the sale of 6,350 tons of high-carbon ferrochromium to Macalloy Corp. in September. DNSC planned to hold its next ferrochromium offering during the first quarter (January-March) of 1997.

DNSC announced that the 1997 Annual Materials Plan (October 1, 1996, through September 30, 1997) went into effect. The plan permits the maximum disposal amounts for chromium materials as follows: chemical grade chromite ore, 90,719 tons; metallurgical grade chromite ore, 226,796 tons; refractory grade chromite ore, 90,719 tons; and chromium ferroalloys, 22,680 tons. If all of the available chromite ore is sold, compared with 1995 production statistics, the United States would be the largest chromite ore supplier in the Western Hemisphere and about the seventh largest world supplier.

For further information contact: Defense National Stockpile Center, 8725 John J. Kingman Road, Suite 3339, Fort Belvoir, VA 22060-6223. Persons may obtain more information from Mr. Peter Roman at (703) 767-6490.

The International Chromium Development Association has prepared a brief (two pages front and back) report entitled *Stainless Steel Kitchen Utensils as a Source of Chromium—Toxicological Implications* oriented to the general public. Copies are available upon request while they last. Contact the author of this Mineral Industry Surveys. The report concluded that small amounts of chromium leach from stainless steel utensils into food during processing, storage, and meal preparation; that no toxicity is expected; and that consumption of additional chromium may be beneficial because chromium in Western diets is less than optimal.

TABLE 1  
U.S. SALIENT CHROMIUM STATISTICS 1/

(Metric tons, gross weight unless otherwise noted)

	1995	1996			
	Year total	2nd quarter	July	Aug.	Jan. - Aug.
Production:					
Chromium ferroalloys and metal: 2/					
Net production:					
Gross weight	72,500	13,700	880 r/	1,180	34,200
Chromium content	49,500	9,630	646 r/	904	24,100
Net shipments	72,100	11,700	1,640 r/	1,800	36,000
Stainless steel production 3/	2,030,000	NA	NA	NA	NA
Components of U.S. supply:					
Stainless steel scrap receipts	663,000	143,000	51,700	38,300	395,000
Imports for consumption:					
Chromite ore	253,000	94,500	4,580	NA	112,000 4/
Chromium ferroalloys 5/	495,000	151,000	31,300	NA	292,000 4/
Chromium metal 6/	7,040	2,310	451	NA	5,280 4/
Stainless steel	NA	NA	NA	NA	NA
Stainless steel scrap	43	13	3	NA	29 4/
Distribution of U.S. supply:					
Consumption:					
Chromite ore	356,000 7/	82,400	15,700	18,600	212,000
Chromium ferroalloys & metal	283,000	67,600 r/	23,300 r/	19,300	186,000
Exports:					
Chromite ore	17,800	56,700	1,920	NA	63,900 4/
Chromium ferroalloys	9,360	1,700	1,320	NA	5,460 4/
Chromium metal	714	384	214	NA	852 4/
Stainless steel	NA	NA	NA	NA	NA
Stainless steel scrap	368	77	35	NA	168 4/
Stocks at end of period:					
Industry:					
Chromite ore:					
Chemical and metallurgical	194,000	160,000	154,000	174,000	XX
Refractory	10,900	8,510	8,080	8,140	XX
Total	205,000	169,000	162,000	182,000	XX
Chromium ferroalloys and metal:					
Producer	8,430	8,000	7,240 r/	6,620	XX
Consumer	10,700	12,900 r/	23,900 r/	16,200	XX
Government Stockpile:					
Chromite ore	1,320,000	1,200,000	1,200,000	1,200,000	XX
Chromium ferroalloys	1,070,000	1,070,000	1,070,000	1,070,000	XX
Chromium metal	7,690	7,690	7,690	7,690	XX

r/ Revised. NA Not available. XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes low- and high-carbon ferrochromium, chromium concentrate, ferrochromium-silicon, chromium metal, and other miscellaneous alloys.

3/ Data on stainless steel production from American Iron and Steel Institute, quarterly production of stainless and heat resisting raw steel.

4/ Includes data for January through July; August not available at time of publication.

5/ Includes high-, medium-, and low-carbon ferrochromium and ferrochromium-silicon.

6/ Includes waste and scrap and other.

7/ Includes withheld data for February through December.

TABLE 2  
U.S. CONSUMPTION, BY END USE, AND CONSUMER STOCKS OF  
CHROMIUM FERROALLOYS AND METAL IN AUGUST 1996 1/

(Metric tons, gross weight)

End use	Ferrochromium		Ferro- chromium silicon	Other	Total	Jan. through Aug. Total 2/
	Low- carbon	Medium- and high- carbon				
Steel:						
Carbon	254	304	8	4	570	4,840
Stainless and heat resisting	485	11,200	W	W	11,700	132,000
Full alloy	333	1,590	81	5	2,010	17,900
High-strength low-alloy and electric	90	W	529	--	619	6,470
Tool	W	171	W	--	171	2,180
Cast irons	W	131	W	W	131	1,070
Superalloys	182	377	--	305	865	6,530
Alloys:						
Welding materials 3/	--	1	--	2	3	22
Other alloys 4/	25	W	--	50	75	482
Miscellaneous and unspecified	200	211	2,770	(5/)	3,180	13,900
Total: 6/ gross weight	1,570	14,000	3,390	365 7/	19,300	XX
Chromium content	1,060	8,530	1,220	340	11,100	XX
Stocks, Aug. 31, 1996	1,330	13,200	1,380	273 8/	16,200	XX
Jan. through Aug.: 2/						
Total	12,900	139,000	30,900	2,910 9/	XX	186,000
Chromium content	8,600	81,100	10,800	2,620	XX	103,000

W Withheld to avoid disclosing company proprietary data; included in "Miscellaneous and unspecified." XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes revised data from previous months.

3/ Includes structural and hard-facing materials.

4/ Includes cutting materials and magnetic, aluminum, copper, nickel, and other alloys.

5/ Withheld to avoid disclosing company proprietary data.

6/ Includes estimates.

7/ Includes 312 tons of chromium metal.

8/ Includes 182 tons of chromium metal.

9/ Includes 2,310 tons of chromium metal.

TABLE 3  
U.S. GOVERNMENT STOCKPILE INVENTORY 1/ OF CHROMIUM MATERIALS 2/

(Metric tons)

Period	Chromite ore			Chromium ferroalloys			Chromium metal	
	Chemical	Metal- lurgical	Refractory	High-carbon ferro- chromium	Low-carbon ferro- chromium	Ferro- chromium silicon	Alumino- thermic	Electrolytic
1995:								
August	220,000	823,000	333,000	738,000	283,000	52,900	2,670	5,020
September	220,000	817,000	333,000	738,000	283,000	52,900	2,670	5,020
October	220,000	792,000	333,000	738,000	283,000	52,900	2,670	5,020
November	220,000	792,000	333,000	738,000	283,000	52,900	2,670	5,020
December	220,000	773,000	328,000	738,000	283,000	52,900	2,670	5,020
1996:								
January	220,000	750,000	328,000	738,000	283,000	52,900	2,670	5,020
February	220,000	739,000	328,000	738,000	283,000	52,900	2,670	5,020
March	220,000	722,000	328,000	738,000	283,000	52,900	2,670	5,020
April	220,000	717,000	328,000	738,000	283,000	52,900	2,670	5,020
May	220,000	694,000	328,000	738,000	283,000	52,900	2,670	5,020
June	220,000	658,000	327,000	738,000	283,000	52,900	2,670	5,020
July	220,000	655,000	322,000	738,000	283,000	52,900	2,670	5,020
August	220,000	655,000	322,000	738,000	283,000	52,900	2,670	5,020

1/ Includes specification and non-specification grade materials and materials set aside for disposal but not yet shipped.

2/ Data are rounded to three significant digits.

Source: National Defense Stockpile Center.

TABLE 4  
U.S. EXPORTS OF CHROMITE ORE, CHROMIUM FERROALLOYS AND METAL 1/

Period	Chromite ore		Chromium ferroalloys 2/			Chromium metal 3/	
	Gross weight (metric tons)	Value (thousands)	Gross weight (metric tons)	Chromium content (metric tons)	Value (thousands)	Gross weight (metric tons)	Value (thousands)
1995:							
July	1,260	\$226	635	381	\$957	69	\$418
August	1,100	213	685	403	1,070	26	329
September	1,350	294	876	530	1,240	61	652
October	1,140	228	923	560	1,270	42	616
November	1,330	425	591	353	855	48	424
December	1,420	205	528	289	639	157	1,520
Total	17,800	3,430	9,360	5,540	12,500	714	7,820
1996:							
January	1,740	427	885	519	1,120	86	1,000
February	1,700	407	887	536	1,230	44	618
March	1,840	484	669	399	894	124	1,450
April	17,100 4/	2,280 4/	734	444	843	165	1,530
May	1,730	1,160	472	288	597	76	863
June	37,900 4/	4,270 4/	490	291	583	143	1,110
July	1,920	568	1,320	797	1,640	214	1,820
Total	63,900	9,600	5,460	3,270	6,910	852	8,390

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes low-, medium-, and high-carbon ferrochromium, and ferrochromium-silicon.

3/ Includes wrought and unwrought and waste and scrap.

4/ All or part of these data have been referred to the Bureau of the Census for verification.

Source: Bureau of the Census.

TABLE 5  
U.S. IMPORTS FOR CONSUMPTION OF CHROMITE ORE,  
FERROCHROMIUM, AND CHROMIUM METAL 1/

(Metric tons)

	1995	1996			
	Jan. - Dec.	May	June	July	Jan. - July
Chromite ore:					
Not more than 40% chromic oxide:					
Gross weight	11,600	15	5,520	38	8,030
Chromic oxide content	4,120	6	1,820	15	2,650
More than 40% but less than 46% chromic oxide:					
Gross weight	14,800	15,000	--	4,540	19,600
Chromic oxide content	6,110	6,570	--	1,850	8,420
46% or more chromic oxide:					
Gross weight	226,000	35,100	10,300	--	84,200
Chromic oxide content	109,000	16,300	4,850	--	39,400
Total, all grades:					
Gross weight	253,000	50,100	15,800	4,580	112,000
Chromic oxide content	119,000	22,900	6,670	1,870	50,400
Ferrochromium:					
Low-carbon: 2/					
Gross weight	65,800	5,740	9,030	4,070	43,100
Chromium content	42,800	3,850	5,740	2,440	26,700
Medium-carbon: 3/					
Gross weight	7,570	--	--	--	36
Chromium content	4,930	--	--	--	23
High-carbon: 4/					
Gross weight	422,000	57,200	16,800	27,200	249,000
Chromium content	254,000	33,000	10,100	16,700	145,000
Total, all grades:					
Gross weight	495,000	62,900	25,800	31,300	292,000
Chromium content	301,000	36,900	15,900	19,100	172,000
Chromium metal:					
Other than waste and scrap	6,930	763	631	451	5,240
Waste and scrap	109	17	(5/)	--	34
Total, all grades	7,040	780	631	451	5,280

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Ferrochromium containing not more than 3% carbon.

3/ Ferrochromium containing more than 3% but not more than 4% carbon.

4/ Ferrochromium containing more than 4% carbon.

5/ Less than 1/2 unit.

Source: Bureau of the Census.

TABLE 6  
U.S. IMPORTS FOR CONSUMPTION OF CHROMITE ORE IN JULY 1996,  
BY GRADE AND BY COUNTRY 1/

Country	July			January - July		
	Gross weight (metric tons)	Cr <sub>2</sub> O <sub>3</sub> (metric tons)	Value 2/ (thousands)	Gross weight (metric tons)	Cr <sub>2</sub> O <sub>3</sub> (metric tons)	Value 2/ (thousands)
Not more than 40% chromic oxide:						
Canada	--	--	--	20	8	\$3
Philippines	--	--	--	7,940	2,620	1,060
Venezuela	15	6	\$5	46	18	16
Zimbabwe	23	9	3	23	9	3
Total	38	15	8	8,030	2,650	1,080
More than 40% but less than 46% chromic oxide:						
South Africa	4,540	1,850	454	120,000	8,420	1,970
46% or more chromic oxide:						
South Africa	--	--	--	84,200	39,400	7,500
Total, all grades:						
Canada	--	--	--	20	8	3
Philippines	--	--	--	7,940	2,620	1,060
South Africa	4,540	1,850	454	104,000	47,800	9,460
Venezuela	15	6	5	46	18	16
Zimbabwe	23	9	3	23	9	3
Total	4,580	1,870	462	112,000	50,400	10,500

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Customs import value generally represents a value in the foreign country and therefore excludes U.S. import duties, freight, insurance and other charges incurred in bringing the merchandise to the United States.

Source: Bureau of the Census.

TABLE 7  
U.S. IMPORTS FOR CONSUMPTION OF FERROCHROMIUM IN JULY 1996,  
BY GRADE AND BY COUNTRY 1/

Country	July			January - July		
	Gross weight (metric tons)	Chromium content (metric tons)	Value 2/ (thousands)	Gross weight (metric tons)	Chromium content (metric tons)	Value 2/ (thousands)
High-carbon ferrochromium: 3/						
Albania	--	--	--	5,000	3,010	\$4,110
China	--	--	--	7,760	4,980	5,570
Croatia	--	--	--	9,430	5,880	6,110
Estonia	--	--	--	8,310	5,400	5,360
Finland	--	--	--	9,020	4,790	4,820
Germany	--	--	--	19	14	38
India	--	--	--	4,610	2,870	3,120
Japan	--	--	--	18	12	25
Kazakstan	11,500	7,500	\$6,620	73,100	43,900	43,400
Russia	--	--	--	17,500	9,370	13,200
South Africa	5,900	3,050	2,340	54,600	27,800	26,500
Turkey	1,530	946	955	30,500	18,900	21,400
United Kingdom	--	--	--	480	301	365
Zimbabwe	8,270	5,200	4,140	28,200	17,800	19,300
Total	27,200	16,700	14,100	249,000	145,000	153,000
Medium carbon ferrochromium: 4/						
Philippines	--	--	--	36	23	47
Low-carbon ferrochromium: 5/						
China	687	442	1,030	6,540	4,320	10,200
Croatia	--	--	--	20	13	17
France	141	98	294	141	98	294
Germany	296	174	706	4,990	3,470	11,300
Japan	32	23	86	191	133	460
Kazakstan	60	43	126	152	106	257
Russia	718	477	1,100	11,500	7,560	17,100
South Africa	1,950	1,070	1,190	16,800	9,310	13,700
Turkey	--	--	--	501	368	1,040
United Kingdom	--	--	--	54	37	87
Zimbabwe	180	116	258	2,140	1,270	2,010
Total	4,070	2,440	4,800	43,100	26,700	56,500
Total, all grades:						
Albania	--	--	--	5,000	3,010	4,110
China	687	442	1,030	14,300	9,300	15,800
Croatia	--	--	--	9,450	5,900	6,130
Estonia	--	--	--	8,310	5,400	5,360
Finland	--	--	--	9,020	4,790	4,820
France	141	98	294	141	98	294
Germany	296	174	706	5,010	3,480	11,400
India	--	--	--	4,610	2,870	3,120
Japan	32	23	86	209	144	485
Kazakstan	11,600	7,550	6,740	73,200	44,000	43,700
Philippines	--	--	--	36	23	47
Russia	718	477	1,100	29,100	16,900	30,300
South Africa	7,850	4,110	3,530	71,400	37,100	40,200
Turkey	1,530	946	955	31,000	19,300	22,500
United Kingdom	--	--	--	534	338	453
Zimbabwe	8,450	5,320	4,400	30,300	19,100	21,300
Total	31,300	19,100	18,900	292,000	172,000	210,000

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Customs import value generally represents a value in the foreign country and therefore excludes U.S. import duties, freight, insurance and other charges incurred in bringing the merchandise to the United States.

3/ Ferrochromium containing more than 4% carbon.

4/ Ferrochromium containing more than 3% but not more than 4% carbon.

5/ Ferrochromium containing not more than 3% carbon.

Source: Bureau of the Census.

TABLE 8  
U.S. IMPORTS FOR CONSUMPTION OF CHROMIUM METAL IN  
JULY 1996, BY GRADE AND BY COUNTRY 1/

Country	July		January - July	
	Gross weight (metric tons)	Value 2/ (thousands)	Gross weight (metric tons)	Value 2/ (thousands)
Waste and scrap:				
Canada	--	--	1	\$7
China	--	--	17	103
Russia	--	--	(3/)	2
Sweden	--	--	16	69
Total	--	--	34	182
Other than waste and scrap:				
Australia	--	--	(3/)	2
China	74	\$427	781	4,590
France	148	1,170	904	7,040
Germany	1	23	97	1,030
Hong Kong	--	--	52	284
India	--	--	(3/)	11
Japan	27	517	203	3,590
Korea, Republic of	--	--	2	8
Netherlands	--	--	(3/)	2
Portugal	--	--	2	106
Russia	78	463	2,410	14,100
Spain	--	--	1	31
Switzerland	(3/)	1	4	15
Taiwan	1	6	4	59
United Kingdom	122	953	780	6,330
Total	451	3,570	5,240	37,200
Total, all grades:				
Australia	--	--	(3/)	7
Canada	--	--	1	2
China	74	427	798	4,700
France	148	1,170	904	7,040
Germany	1	23	97	1,030
Hong Kong	--	--	52	284
India	--	--	(3/)	11
Japan	27	517	203	3,590
Korea, Republic of	--	--	2	8
Netherlands	--	--	(3/)	2
Portugal	--	--	2	106
Russia	78	463	2,410	14,100
Spain	--	--	1	31
Sweden	--	--	16	69
Switzerland	(3/)	1	4	15
Taiwan	1	6	4	59
United Kingdom	122	953	780	6,330
Total	451	3,570	5,280	37,400

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Customs import value generally represents a value in the foreign country and therefore excludes U.S. import duties, freight, insurance and other charges incurred in bringing the merchandise into the United States.

3/ Less than 1/2 unit.

Source: Bureau of the Census.